

ward into the Rio Grande Valley, somewhat to the westward of Rio Grande City. A line showing the western limit is traced from southeastern Arizona northwestward over central California, and thence northward near the coasts of Oregon and Washington Territory, there being a gradual increase of distance from the coast line from Washington Territory southward to northern California.

TEMPERATURE OF WATER.

The following table shows the maximum, minimum, and mean water temperature as observed at the harbors of the several stations; the monthly range of water temperature; and the mean temperature of the air for December, 1888:

Stations.	Temperature at bottom.				Mean temperature of air at the station.
	Max.	Min.	Range.	Monthly mean.	
Canby, Fort, Wash.	50.2	43.0	7.2	47.5	47.4
Cedar Keys, Fla (1)	54.0	48.0	6.0	51.5	47.2
Charleston, S. C.	44.9	39.5	5.4	42.3	28.4
Eastport, Me.	63.0	53.5	9.5	57.9	56.6
Galveston, Tex.	73.8	62.3	11.5	68.5	67.1
Key West, Fla.	42.8	32.5	10.3	37.8	34.4
New York City	65.0	54.0	11.0	59.6	50.4
Pensacola, Fla.	48.0	39.0	9.0	45.3	43.6
Portland, Oregon					

(1) Report not received.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for December, 1888, as determined from the reports of nearly 1,500 stations, is exhibited on chart iii. In the table of miscellaneous meteorological data are given, for each Signal Service station, the total precipitation, with the departure from the normal. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

The precipitation for December, 1888, was above the normal in California, the southern plateau region, over an area extending from central Texas northward to the lower Missouri valley, in portions of the upper lake region and upper Mississippi valley, southern Florida, northern part of the middle Atlantic states, in New England (with exception of a small area along the southern coast), and in the Maritime Provinces. In other portions of the United States and Canada the precipitation was below the normal. The most noteworthy features of this month's precipitation were the large excess in southern Florida, the lower Missouri valley, California, and southern plateau, and the marked deficiency in the extreme northwest, Ohio valley and Tennessee, lower lake region, and lower Rio Grande valley. In southern Florida the rainfall was about three times the December normal, and in California, the southern plateau, and lower Missouri valley it exceeded the normal by from 30 to 70 per cent. In the extreme northwest, where the normal December rainfall is very small, about 0.75, only about one-fourth of that amount fell this month. In the lower Rio Grande valley, lower lake region, Ohio valley and Tennessee the precipitation was about one-half of the normal, and in the following-named districts it ranged from 30 to 35 per cent. below the normal: east Gulf states, northern and southern Rocky Mountain slopes, northern plateau, and north Pacific coast. It ranged from 85 to 90 per cent. of the normal in the middle and south Atlantic states and central Rocky Mountain slope; and in the upper lake region the deficiency amounted to about 5 per cent. While an average determined from all Signal Service stations in New England shows a slight deficiency as compared with the normal, there was a small but general excess over much the larger portion of that district, the slight deficiency shown in the table being due to the very small precipitation which occurred at a few stations along the southern coast.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for a series of years; (2) the length of record during which the observations have been taken, and from which the average has been computed; (3) the total precipitation for December, 1888; (4) the departure of the current month from the average;

(5) and the extreme monthly precipitation for December during the period of observation and the years of occurrence:

State and station.	County.	(1) Average for the month of Dec.	(2) Length of record.	(3) Total for Dec., 1888.	(4) Departure from average.	(5) Extreme monthly precipitation for December.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
Arkansas.		Inches	Years	Inches	Inches	Inches		Inches	
Lead Hill	Boone	4.16	7	2.31	-1.85	11.37	1884	1.51	1886
California.									
Sacramento	Sacramento	4.44	39	5.88	+1.44	13.41	1852	0.00	1850
Colorado.									1896
Fort Lyon	Bent	0.24	12	trace.	-0.24	1.20	1883	0.00	1868
Connecticut.									
Middletown	Middlesex	3.72	28	5.55	+1.83	7.91	1878	1.20	1875
Dakota.									
Fort Randall	Todd	0.86	30	0.66	-0.20	4.75	1877	0.00	1864
Florida.									
Merritt's Island	Brevard	2.61	11	8.55	+5.94	8.55	1888	0.46	1883
Georgia.									
Forsyth	Monroe	4.77	14	4.58	-0.19	7.56	1887	2.35	1877
Illinois.									
Peoria	Peoria	2.48	33	2.39	-0.09	7.15	1873	0.28	1876
Riley	McHenry	2.01	28	1.87	-0.14	5.67	1876	0.28	1857
Indiana.									
Logansport	Casa	3.56	12	(1)	(1)	5.99	1881	0.00	1876
Iowa.									
Vevay	Switzerland	4.03	23	1.16	-2.87	7.60	1879	1.16	1888
Kansas.									
Cresco	Howard	1.32	17	2.20	+0.88	2.83	1879	0.30	1874
Monticello	Jones	2.44	33	2.26	-0.18	6.99	1856	0.65	1867
Logan	Harrison	1.31	19	1.86	+0.55	3.30	1882	0.20	1870
Louisiana.									
Lawrence	Douglas	1.70	24	1.78	+0.08	4.39	1873	0.19	1862
Wellington	Sumner	1.08	9	0.87	-0.21	3.14	1884	0.08	1886
Maine.									
Grand Coteau	St. Landry	6.59	5	4.03	-2.56	14.43	1884	2.70	1885
Maryland.									
Gardiner	Kennebec	3.76	48	4.20	+0.44	7.55	1878	0.68	1838
Massachusetts.									
Cumberland	Alleghany	2.17	17	1.53	-0.64	4.50	1881	0.70	1871
Michigan.									
Amherst	Hampshire	3.58	53	4.29	+0.71	7.09	1839	0.96	1838
Newburyport	Essex	3.75	15	4.76	+1.01	7.24	1852	0.25	1875
Somerset	Bristol	3.46	16	4.13	+0.67	5.67	1884	0.82	1875
Minnesota.									
Kalamazoo	Kalamazoo	3.15	12	1.94	-1.21	7.14	1884	1.65	1880
Thornville	Lapeer	2.74	11	1.65	-1.09	5.25	1879	0.67	1880
Montana.									
Minneapolis	Hennepin	1.62	21	0.61	-1.01	5.30	1873	0.33	1866
New Hampshire.									
Fort Shaw	Lewis & Clarke	0.54	18	0.46	-0.06	2.47	1884	0.00	1877
New Jersey.									
Concord	Merrimack	3.29	8	3.52	+0.23	3.97	1857, '84	1.55	1856
New York.									
Moorestown	Burlington	3.21	25	2.69	-0.52	5.77	1865	0.90	1877
South Orange	Essex	3.83	18	4.95	+1.12	7.07	1878	0.91	1877
North Carolina.									
Cooperstown	Otsego	2.57	34	3.30	+0.73	6.02	1881	0.97	1877
Palermo	Oswego	3.94	34	2.25	-1.69	7.95	1878	1.60	1874
Ohio.									
Lenoir	Caldwell	4.09	14	2.70	-1.39	8.70	1877	1.60	1874
Tennessee.									
N. Lewisburgh	Champaign	3.01	16	1.85	-1.16	5.45	1873	1.50	1882
Wauseon	Fulton	2.39	16	1.88	-0.51	4.32	1879	0.41	1874
Oregon.									
Albany	Linn	8.72	10	4.28	-4.44	14.21	1887	4.28	1888
Eola	Polk	6.58	16	2.59	-3.99	11.50	1880	0.84	1876
Pennsylvania.									
Dyberry	Wayne	2.60	19	3.40	+0.80	5.02	1878	0.95	1874
Grampian Hills	Clearfield	3.68	18	2.89	-0.79	5.12	1872	1.99	1871
Wellsbrough	Tioga	4.70	9	5.91	+1.21	9.17	1881	1.27	1883
South Carolina.									
Statesburgh	Sumter	3.40	7	3.98	+0.58	5.87	1884	1.26	1883
Texas.									
Austin	Wilson	4.61	18	1.57	-3.04	10.20	1879	0.85	1882
Milan	Gibson	3.97	5	2.00	-1.97	7.25	1884	2.00	1888

Deviations from average precipitation—Continued.

State and station.	County.	(1) Average for the month of Dec.	(2) Length of record.	(3) Total for Dec., 1888.	(4) Departure from average.	(5) Extreme monthly precipitation for December.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
<i>Texas.</i>		<i>Inches</i>	<i>Years</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>	
Fort Concho	Tom Green...	1.40	15	0.40	-1.00	4.80	1874	0.00	1873
New Ulm	Austin	4.61	17	4.52	-0.09	16.43	1875	0.44	1880
<i>Vermont.</i>									
Strafford	Orange	3.26	15	3.50	+0.24	5.90	1878	0.15	1875
<i>Virginia.</i>									
Bird's Nest	Northampton	3.87	19	2.15	-1.72	6.75	1880	1.70	1876
Wytheville	Wythe	2.96	23	2.30	-0.66	6.00	1871	0.20	1861
<i>West Virginia.</i>									
Helvetia	Randolph ...	5.46	11	3.05	-2.41	13.27	1882	1.86	1876
<i>Wisconsin.</i>									
Madison	Dane	1.98	20	1.57	-0.41	5.73	1884	0.45	1874
<i>Washington.</i>									
Fort Townsend ..	Jefferson	2.48	17	2.78	+0.30	6.18	1880	0.67	1874

† Report not received.

NORMAL RAINFALL FOR MICHIGAN.

The Chief Signal Officer has received from Sergeant N. B. Conger, Signal Corps, in charge of the Michigan Weather Service (central station, Lansing), an annual normal rain chart for that state. The chart in question is based upon observations of thirteen years, and a very large number of reports have been used in its preparation. It shows that the normal rainfall for the state is, in general, between thirty and forty inches, and, with the exception of a few small areas, is, as might be expected, greatest over the western portion of the lower peninsula.

HAIL.

Hail is reported to have fallen as follows:

1st, Mass. 3d, La., Mich. 11th, Me., N. Y. 12th, Ala. 14th, Ariz. 15th, Mich., Ohio, Tex., Wis. 16th, Pa. 17th, Me., N. Y. 18th, Me., N. H. 21st, Ariz. 25th, Kans., La. 26th, Iowa. 27th, Cal., Pa. 29th, La., Tex. 31st, N. Y.

SLEET.

Sleet occurred during December on the several dates as follows: 1st, N. Y. 2d, N. C. 3d, Mich., N. Y., Ohio. 4th, Mich. 5th, Wis. 6th, Ohio. 8th, N. Y. 11th and 12th, Me. 13th, Dak., Va. 14th, Ariz., Dak., Ill., Wis. 15th, Dak., Kans., Mich., Minn., Nebr., Ohio, Utah, Wis. 16th, Dak., Ill., Iowa. 17th, Ill., Me., N. Y. 18th, Ill., Me., N. H., Tenn. 20th, Colo. 23d, Dak. 24th, Colo., Minn., Mo., Nebr. 25th, Colo., Iowa, Kans., Mo. 26th, Ill., Iowa, Mich., Mo., Wis. 27th, N. Y., Wis. 28th, Ariz., Ind. 29th, Mich. 30th, Ark., Ill., Mich., Mo. 31st, Ind., Mich.

SNOW.

During December, as in the previous month, snow fell in some part of the country every day. On the 1st, 17th, 18th, 19th, and 28th it occurred in as many as from twenty to twenty-three states or territories; and on the 2d, 3d, 8th, 10th, and 22d in but from three to eight states or territories. In Michigan snow was reported on every day during the month, with the exception of the 2d and 7th, and in New York there were but five days, viz., 10th, 23d, 24th, 25th, and 30th, on which snow did not fall, Pennsylvania and Ohio following next in order of frequency with twenty-three and twenty dates, respectively. East of the Rocky Mountains the 35th parallel is about the southern limit of snow for December.

MONTHLY SNOWFALLS (inches and tenths) IN DECEMBER.

Over portions of Iowa, Wisconsin, upper Michigan, western New York, northern New England, the central plateau, and central Rocky Mountain slope monthly snowfalls reaching depths of ten inches or more occurred during December. In some portions of the regions named depths ranging from 15 to 30 inches were reported, and in a few instances the latter figure was exceeded, but upon the whole it appears that the snowfalls of December, as was the case in November, were much below the average. Over more than half the area of the country

northward of the thirty-fifth parallel the monthly snowfalls were below four inches, and there are extensive areas in the extreme northwest and central valleys where they were below two inches. An extreme depth of 39 inches occurred at Summit, Cal.; other stations reporting 30 or more inches are: Emigrant Gap, Cal., 35, Marquette, Mich., 34.1, Wedgewood, N. Y., 30. As previously stated, the thirty-fifth parallel is the southern limit of snowfall eastward of the Rocky Mountains.

Below are given all monthly snowfalls of ten inches or more, and in states and territories where the maximum depth was below that amount, the station reporting the greatest is given:

Alabama.—New Market, trace. *Arizona.*—Williams, 15. *California.*—Summit, 39; Emigrant Gap, 35; Truckee, 15. *Colorado.*—Glenwood Springs, 19.8; T. S. Ranch, 12; Ouray, 11.4. *Connecticut.*—New Hartford, 6. *Dakota.*—Fort Sully, 7.3. *Idaho.*—Boisé City, 2.8. *Illinois.*—Lake Forest, 4.5. *Indiana.*—Princeton, 4. *Indian Territory.*—Fort Supply, 5.6. *Iowa.*—Des Moines and Elkader, 15; Fayette, 14.2; Grinnell, 14½; Osceola, 13; Clarinda, 11.2; Independence, 11.1; Monticello, 10.1; Cresco and Vinton, 10. *Kansas.*—Topeka, 7.4. *Kentucky.*—Lexington, 1.6. *Maine.*—Orono, 19.6; Calais, 10. *Maryland.*—Baltimore, Fallston, Frederick, and Woodstock, trace. *Massachusetts.*—Worcester, 6.5. *Michigan.*—Marquette, 34.1; Lathrop, 22.4; Manistee, 12.6; Gulliver Lake, 12.5; Bear Lake, 10.5; Fort Brady, 10.3. *Minnesota.*—Saint Vincent, 5.6. *Mississippi.*—Lake, trace. *Missouri.*—Mound City, 9.8. *Montana.*—Sheldon, 9.3. *Nebraska.*—Falls City, 7.6. *Nevada.*—Pioche, 17; Toano, 14.2. *New Hampshire.*—West Milan, 14; Berlin Mills, 11.5. *New Jersey.*—Moorestown, 0.4. *New Mexico.*—Las Vegas, 4.5. *New York.*—Wedgewood, 30; Friendship, 29; Perry City, 27.8; Constableville, 25; Nineveh, 22; Humphrey, 20.1; South Canisteo, 20; Ithaca, 18.9; Angelica, 18; Utica, 17.2; Ilion, 16.8; Rochester, 15.5; Palermo, 15; Auburn, 14; Canton and Rose, 13.2; Eden, 12.4; Oswego, 11.6; Le Roy, 11.4; Waddington, 10½. *North Carolina.*—Greensborough, 4. *Ohio.*—Garrettsville, 5.6. *Oregon.*—Fort Klamath, 9.4. *Pennsylvania.*—Meadville a, 21.4; Eagle's Mere, 19.8; Troy, 16½; Meadville b, 14.2; Wellsborough, 12.9; Tionesta, 12.5; Girardville, 11. *Rhode Island.*—Providence and Woonsocket, 1. *South Carolina.*—Cedar Spring, trace. *Tennessee.*—Greeneville, 3.6. *Texas.*—Fort Elliott, 5.3. *Utah.*—Fort Du Chesne, 9.5. *Vermont.*—East Berkshire, 22; Middlebury, 18.2; Strafford, 12; Coventry, 11.5; Burlington, 11; Lunenburg, 10. *Virginia.*—Marion, 2.5. *Washington Territory.*—Fort Spokane, 5. *West Virginia.*—Middlebrook, 16½. *Wisconsin.*—Green Bay, 23.8; La Crosse, 12.3. *Wyoming.*—Fort Bridger, 5.8.

DEPTH OF SNOW REMAINING ON GROUND AT 15th AND CLOSE OF MONTH.

As the areas of country covered by snow on the 15th of December were of limited extent, being confined to portions of New England, lower lake region, and northern Minnesota, no chart showing the depths remaining at that date has been prepared. The regions over which the greatest quantity of snow remained on the 15th were western New York and portions of Vermont and New Hampshire, where it generally ranged from six to eight inches, a few stations reporting more than six inches, viz.: Humphrey, N. Y., about 12; West Milan, N. H., 8; Friendship, N. Y., 6 to 8; Angelica, N. Y., 6 to 7. In northern Minnesota there was a small area over which the depth of snow averaged about one inch.

On chart v are shown the portions of country covered by snow at the close of December. From the Lake region and upper Mississippi valley westward to the plateau region the country was generally covered with snow, but over the greater part the depths were less than two inches. In the central and northern plateau districts several stations report from four to six inches, and over a narrow area extending from central Iowa northeastward to Lake Superior there were generally from six to ten inches, a few stations reporting depths exceeding ten, viz., Green Bay, Wis., 15; Elkader, Iowa, 14; and Marquette,

Mich., 12. In New England there was very little snow at the end of December and that reported was in the extreme northern portions. Only one station in New England reported a depth of more than two inches, viz., East Berkshire, Vt., 6. The snowfall of the winter of 1888-'89 to the close of December is probably the smallest that has occurred for a number of years.

EXCESSIVE PRECIPITATION.

Rainfalls of ten inches or more for the month of December in past years have been confined principally to the Pacific coast region. East of the Rocky Mountains comparatively few rainfalls have occurred that have reached or exceeded ten inches, and they have been confined mostly to the lower Mississippi valley and adjacent Gulf states, as has generally been the case for other months for which similar data has been discussed during the past year. It will be seen from the accompanying table of excessive precipitation that there is a large number of stations reporting rainfalls exceeding ten inches in California, Oregon, and Washington Territory, and especially in California, where, during the past decade of years, observations of temperature and rainfall have been extensively carried on by the Central and Southern Pacific railway systems. The amount of data given for California, if not carefully considered, may give an erroneous impression as to the frequency with which the ten inch limit is reached in that state during December, on account of the large number of places at which observations are made, there being in addition to regular Signal Service and voluntary stations in California more than one hundred points along the Central and Pacific railways where temperature and rainfall observations are regularly recorded. An examination of the records of a number of stations where the observations have been continuous for a considerable period seems to warrant the statement that over a large part of northern California December rainfalls reach ten inches or more about once in four years. In the lower portion of the state (south of latitude 37°) only a few such rainfalls are on record. The years in which these heavy rainfalls have occurred most extensively in California since 1870 are 1871 and 1880. In the latter year thirty-eight stations reported more than ten inches, and while during 1871 the number of stations was ten less, that fact does not justify the conclusion that these rains were more extensive in the latter than in the former year, as the number of observing stations was largely increased during the interval between the years mentioned. No rainfalls amounting to as much as ten inches were recorded in California from 1874 to 1878 (five years), nor in 1882 and 1883, and only one instance is recorded for each of the following years: 1870, 1881, 1886, 1887, and 1888. Along the coasts of Oregon and Washington Territory these large rainfalls occur more frequently than in northern California, and from the records covering several years of continuous observations it appears that they reach ten inches somewhat more frequently than they fall below that amount. At Astoria, Oregon, near the mouth of the Columbia River, where the record covers twenty-six years, there have been noted in that time nineteen December rainfalls exceeding ten inches; of that number nine exceeded fifteen inches, two exceeded twenty-two inches, and in 1867 a maximum fall of 24.73 inches occurred. As stated above but few December rainfalls have reached ten inches east of the Rocky Mountains. At Vicksburg, Miss., where the period of observations, while not continuous, covers about thirty-five years, only four December rainfalls have exceeded ten inches, and the New Orleans record of forty-three years shows that no December rainfall has reached that amount. At a few stations near the Gulf coast from one to three of these excessive monthly falls have occurred during the periods covered by the observations. Of the four hundred and two instances in which December rainfalls of ten or more inches have been recorded within the United States one hundred and seventy-six occurred in California, sixty-five in Oregon, and fifty-two in Washington Territory, leaving but one hundred and nine for all other portions of the country. Of the total number of these excessive monthly

rainfalls it is observed that 69 per cent. range between ten and fifteen inches; 19 per cent. between fifteen and twenty inches; 6 per cent. between twenty and twenty-five inches; 3 per cent. between twenty-five and thirty inches, and 3 per cent. exceeded thirty inches. The following are the most remarkable falls for the Pacific coast region: Bowman's Gap, Cal., 46.57, (year not stated); Nevada City, Cal., 41.95, 1867; Pilarcitos, Cal., 41.87, 1871; Mount Hamilton, Cal., 33.84, 1884; Georgetown, Cal., 33.77, (year not stated); Emigrant Gap, Cal., 31.20, 1884; Neah Bay, Wash., 30.70, 1886; Meadow Valley, Cal., 30.35, 1866. East of the Rocky Mountains the only stations reporting amounts in excess of twenty inches are: Fort Clark, Tex., 23.03, 1857; Point Pleasant, La., 20.39, 1884; Paducah, Ky., 20.12, 1879.

While about three-fourths of all the excessive monthly rainfalls for December occurred in Washington Territory, Oregon, and California less than one-sixth of the daily falls amounting to 2.50 inches or more have occurred in the states and territory mentioned, this fact being due, as stated in the November REVIEW, to the steady nature of the rains on the Pacific coast. At Olympia, Wash., five daily rainfalls of 2.50 or more have occurred in the past twelve years. To the southward of Olympia these rainfalls occur with somewhat less frequency, with the exception of the vicinity of Los Angeles, Cal., where the same number recorded at Olympia has occurred. Along the Atlantic coast, and from the Ohio and central Mississippi valleys southward to the Gulf are the regions where excessive daily rainfalls most commonly occur in this month. Point Pleasant, La., reports the greatest number, ten, between 1878 and 1884, but of that number five occurred in a single year, 1878. With the exception of Hatteras, N. C., where eight such rainfalls have been recorded since 1877, very few stations north of the thirty-fifth parallel have noted as many as four. Some of the most remarkable falls for twenty-four consecutive hours are the following: Clarksville, Tex., 8.50, 29-30th, 1874, and 8.50, 28-29th, 1876; Monroe, La., 12.15, 29-30th, 1884; Point Pleasant, La., 13.50, 19th, 1882; Yaquina Light-House, Oregon, 8.47, 5-6th, 1887.

Only twenty-six hourly rainfalls of one inch or more in December are on the records of the Signal Office, and of that number the following-named stations report two each: Los Angeles, Cal., Clarksville, Tex., Fort Barrancas, Fla., Indianapolis, Ind., and Knoxville, Tenn. The others occurred at widely distant stations east of the one-hundredth meridian.

Table showing for the month of November monthly rainfalls of 10 inches, or more (in states where monthly rainfalls did not reach 10 inches the station reporting the maximum amount is given); rainfalls of 2.50 inches, or more, in any 24 consecutive hours; and rainfalls equaling or exceeding one inch in one hour.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
<i>Alabama.</i>	<i>Inches.</i>		<i>Inches.</i>			<i>Inches.</i>	<i>h. m.</i>		
Auburn.....	13.84	1887	3.16		1887				
Carrollton.....			3.10	9	1884				
Do.....			2.55	8	1885				
Do.....			3.10	31	1887				
Clinton.....			2.79	14	1884				
Centre.....			2.66	9	1885				
Do.....			3.25	13	1885				
Florence.....	12.81	1849							
Gadsden.....	11.10	1887							
Do.....			2.95	9	1887				
Greensborough.....			2.54	9	1885				
Mobile.....			2.72	21	1876				
Do.....			2.69	8	1878	1.00	0 35	5	1879
Do.....			4.18	13	1885				
Montgomery.....			3.03	14	1879				
Do.....			2.93	14	1881				
Do.....			3.45	21	1881				
Mount Vernon Barracks.....	11.80	1843							
Do.....	13.09	1853	3.60	18	1882				
Mount Willing.....	15.95	1887							
Prattville.....			3.50	14	1884				
Do.....			3.10	13	1885				
Talladega.....	10.48	1887							
Trinity.....	14.60	1887	5.20	4	1887				
Tuscaloosa.....			3.40	14	1884				

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
California—Continued.									
Fort Reading.....	11.18	1852							
Fort Ter Waw.....	15.60	1860							
Georgetown.....	33.77								
Gilroy.....	12.33	1880							
Grass Valley.....	22.69	1888							
Grayson.....	15.11	1871							
Henddsburgh.....	20.42	1871							
Hydesville.....	12.01								
Jackson.....	14.64								
Laytonville.....	20.08								
Livermore.....	11.69	1871							
Los Angeles.....			3.58	30-31	1878	1.00	1 00	17	1877
Do.....			4.34	19-20	1879	1.00	1 00	25	1884
Do.....			3.04	25-26	1884				
Do.....			2.72	21-22	1888				
Mare Island.....	14.02	1871							
Marysville.....	12.37	1872							
Do.....	12.45	1873							
Meadow Valley.....	16.40	1864							
Do.....	30.35	1866							
Mendocino.....	11.85	1871							
Do.....	17.08	1880							
Middletown.....	22.93								
Monterey.....	11.42	1871							
Mount Hamilton.....	33.84	1884							
Mount Saint Helena.....			6.65	2-3	1880				
Do.....			5.73	19-20	1880				
Do.....	28.91	1880	9.04	23-24	1880				
Mumford Hill.....	24.34	1880							
Napa.....	10.16	1884							
Nevada City.....	41.95	1867							
Nicolaus.....	10.62								
Niles.....	11.91	1871							
North Bloomfield.....	27.21								
Oakland.....	12.57	1880							
Orleans.....	12.60								
Oroville.....	10.60	1880							
Petaluma.....	13.87	1871							
Do.....	10.81	1873							
Pilarcitos.....	41.87	1871							
Placerville.....	22.65								
Pleasanton.....	10.61	1880							
Point Montara.....	10.09								
Point Reyes.....	11.43	1880							
Point San Jose.....	10.82	1871							
Presidio of San Francisco.....	12.07	1852							
Do.....	11.63	1866	2.94	21	1885				
Red Bluff (1).....	12.24	1880	2.58	23	1877				
Do. (1).....			5.04	19	1879				
Do. (1).....			2.89	4	1881				
Do. (2).....	12.85	1880							
Redding.....	10.85	1879							
Do.....	18.39	1880							
Do.....	14.57	1884							
Reed's Camp.....	32.07	1880							
Ring's Station.....	10.27	1880							
Ross Valley.....	22.85								
Sacramento.....	12.50	1849							
Do.....	13.41	1852							
Do.....	12.85	1867							
Do.....	10.37	1871							
Do.....	10.12	1873	2.58	2	1880				
Do.....	11.81	1880							
Do.....	10.45	1884	2.81	21	1885				
Salinas.....			3.20	24	1872				
San Andreas.....	51.05	1871							
San Buena Ventura.....			3.22	(?)	1878				
San Diego.....			2.52	4	1873				
Do.....			2.55	27-28	1879				
San Francisco (1).....	12.00	1852							
Do..... (2).....	12.03	1852							
Do..... (1).....	15.16	1866							
Do..... (2).....	13.32	1866							
Do..... (1).....	10.69	1867							
Do..... (2).....	10.77	1867							
Do..... (1).....	14.36	1871							
Do..... (1).....			3.12	19	1871				
Do..... (2).....	16.74	1871							
Do.....	12.33	1880	2.78	21	1885				
San Geronio.....	10.27	1880	2.61	3	1880				
San Luis Obispo.....	13.93	1871							
San Mateo.....	11.37	1880							
San Rafael.....	25.10		11.45	17-21	1884				
Do.....	20.96	1884	7.69	23-26	1884				
Santa Barbara.....	12.67	1867	3.99	31	1878				
Santa Cruz.....	12.59	1880							
Santa Rosa.....	12.07	1873							
Saucelito.....	12.34								
Scott Valley.....	12.75	1880							
Shingle Springs.....	23.76	1867							
Smartville.....	19.02	1873							
South Vallejo.....	10.71	1880							
Stockton.....	11.50	1871							
Suisun City.....	16.95	1871							
Do.....	10.80	1880							
Summit.....	28.88	1871							
Do.....	11.70	1873							
Do.....	13.30	1879							
Do.....	10.43	1884							
Do.....	11.60	1887							
Tennant.....	14.43	1880							

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
<i>California—Continued.</i>	<i>Inches.</i>		<i>Inches.</i>			<i>Inches.</i>	<i>h. m.</i>		
Truckee	16.90	1871							
Do.	16.23	1871							
Do.	13.14	1884							
Do.	13.24	1884							
Ukiah	12.94	1880							
Vacaville	21.85	1880							
Watsonville	11.35	1871							
Weaverville	14.14	1880							
Woodland	10.44	1873							
Woodside	14.23								
Yreka			3.54	5	1879				
<i>Colorado.</i>									
Pike's Peak	4.55	1878							
<i>Connecticut.</i>									
Hartford			4.20	17-18	1888				
New Hartford			3.45	17	1888				
New Haven			3.75	17	1888				
Southington	7.93	1876							
<i>Dakota.</i>									
Fort Randall	4.75	1877							
<i>Delaware.</i>									
Fort Delaware	8.40	1868	3.05	17	1863				
Do.			4.00	4-5	1868				
Do.			3.30	8	1868				
Newark			3.70	16	1888				
<i>District of Columbia.</i>									
Kendall Green			3.05	16-17	1888				
Receiving Reservoir			2.65	18	1888				
Washington City	6.22	1859	2.70	17	1888				
<i>Florida.</i>									
Altamonte Springs			3.48	17	1888				
Cedar Keys			3.28	19	1880				
Do.			3.73	5	1884				
Fort Barrancas	13.42	1855	5.36	3-4	1877				
Do.	15.46	1879	5.43	5	1879	5.43	5 20	5	1879
Do.	10.89	1881	5.34	20	1881	2.33	1 15	11	1879
Do.			5.36	3-4	1887				
Fort Jefferson	12.60	1863							
Fort Meade			6.20	17	1888	6.20	6 00	17	1888
Homeland			4.10	17	1888				
Jacksonville			4.43	9-10	1885				
Key West			3.00	20-21	1870				
Do.			3.93	11-12	1879				
Do.			2.50	1	1888				
Kissimmee City			3.00	16-17	1888				
Micco	11.17	1888	6.33	24	1888				
Merritt's Island			2.97	10	1886	5.39	4 00	17	1888
Do.			5.39	17	1888				
Newport	10.99	1884	3.80	5	1884				
Pensacola	10.76	1881	4.17	21	1881				
Do.			4.23	13	1885				
Saint Francis Barracks			3.50	27	1888				
Saint Mark's	10.99	1884							
Tallahassee			3.30	16	1887				
Titusville			5.28	17	1888				
<i>Georgia.</i>									
Athens			2.95	14-15	1884				
Atlanta	17.25	1859	4.12	13-14	1879				
Do.			3.74	14	1884				
Do.			2.60	9-10	1888				
Ellerslie	12.50	1881							
Fort Quitman			2.71	13	1882				
La Fayette	10.88	1872							
Leo	10.33	1881							
Milledgeville			2.60	10	1888				
Mount Airy	11.01	1881							
Oglethorpe Barracks	13.26	1870							
Quitman			4.70	4-5	1877				
Do.			3.70	6	1884				
Do.			3.90	16	1887				
Do.			2.50	23	1887				
Do.			3.65	16-17	1888				
Rabun Gap	11.45	1881							
Saint Mary's			3.75	25-29	1876				
Savannah	13.26	1870	3.25	16	1870				
Do.			3.01	6	1880				
Do.			3.66	9-10	1885				
Do.			3.71	23-24	1887				
Thomasville			2.51	21	1878				
Tybee Island			3.41	9	1878				
<i>Idaho.</i>									
Lewiston	6.31	1880							
<i>Illinois.</i>									
Cairo			3.24	31	1871	1.26	1 00	31	1871
Do.			2.75	23-24	1879				
Do.			2.65	27-28	1887				
Champaign			3.21	13	1881				
Chicago			2.50	22-23	1871				
Louisville	9.59	1873	5.70	3	1873				
McLeansborough			3.22	27	1884				
Peoria			2.62	9	1856				
Springfield			3.33	13	1881				
<i>Indiana.</i>									
Corydon			2.60	23	1883				
Evansville			3.00	24	1879				
Huntingburgh			3.44	23	1883				
Indianapolis			3.46	3	1873	1.30	1 00	3	1873
Do.						1.00	1 00	27	1874
Marengo			3.10	23	1883				
Do.			2.50	31	1887				
Princeton			3.10	23	1883				

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
Indiana—Continued.									
Richmond	11.20	1852	Inches			Inches	a. m.		
Rising Sun			2.70	3-4	1873				
Salem			3.12	23	1883				
Spiceland			2.71	27	1884				
Vevay			2.50	24	1879				
Do			3.75	4	1880				
Wabash	12.72	1876							
Indian Territory.									
Fort Bill			2.70	18-19	1870				
Fort Towson	8.30	1841							
Iowa.									
Kookuk			2.61	11	1873				
Nashua	9.95	1880	3.47	26	1883				
Oskaloosa			2.50	16	1883				
Kansas.									
Council Grove						1.00	1 00	15	1874
Fort Hays			3.00	22	1871				
Fort Leavenworth			3.23	25	1862				
Do			2.75	15-16	1870				
Do			4.60	23	1871				
Do			3.60	21	1874				
Holton			2.50	12-13	1878				
Leavenworth	6.51	1873							
Morse			4.50	12-13	1878				
Kentucky.									
Louisville			3.87	3	1873				
Do			2.84	24	1875				
Do			2.70	23-24	1878				
Paducah	20.12	1879?	2.84	24	1879				
Do			2.60	30	1879				
Springdale	10.90	1848							
Louisiana.									
Abbeville			2.70	8	1888				
Alexandria	16.76	1884							
Algiers	11.30	1876							
Ashton Plantation			3.25	12	1885				
Baton Rouge	10.10	1855							
Do	11.73	1858							
Black River	12.46	1857							
Coushatta			2.94	4	1887				
Cheneyville	11.93	1884							
Delta	14.94	1884							
Grand Coteau	14.43	1884	3.25	10	1884				
Lake Charles			2.80	15	1888				
Lake Providence	14.84	1884							
Mandeville	10.24	1884							
Monroe	18.53	1884	12.15	29-30	1884				
New Orleans			2.54	18	1872				
Do			3.82	4	1875				
Do			2.59	31	1877				
Do			3.40	12-13	1885				
Point Pleasant			3.01	1	1878				
Do			7.02	8-9	1878				
Do			4.81	19-21	1878				
Do			2.81	24	1878				
Do	17.69	1878	3.01	29-30	1878				
Do	13.75	1882	13.50	19	1882				
Do			3.01	5	1884				
Do			5.01	14	1884				
Do			4.03	20-21	1884				
Do	20.39	1884	8.03	28-30	1884				
Port Eads			3.79	21	1881				
Do	11.28	1881	3.83	25	1881				
Saint Joseph	13.02	1884							
Shreveport			2.53	15	1872				
Do			4.66	21	1875				
Do			3.56	13	1881				
Do			2.83	27	1884	2.00	1 00	11	1884
Do	15.55	1884	4.08	28	1884				
Do			3.78	29	1884				
Vidalia			3.10	8-9	1888				
Maine.									
Brunswick	9.89	1845							
Gardiner			3.84	9-10	1878				
Portland			3.76	25-26	1877				
Do			2.58	9-10	1878				
Maryland.									
Baltimore			2.85	10	1878				
Do			2.56	16-17	1888				
Fallston			2.52	23-24	1883				
Do			2.80	6	1884				
Do			4.95	17-18	1888				
Fort McHenry	8.80	1839	3.16	13-14	1879				
Do			3.16	17	1888				
Galena			2.70	10-11	1888				
McDonogh			3.02	17	1888				
Mount Saint Mary's College			2.59	16-17	1888				
Massachusetts.									
Blue Hill Observatory			2.80	17	1888				
Boston			2.58	10	1878				
Do			2.87	17-18	1888				
Deerfield			2.52	27	1887				
Dudley			3.46	17	1888				
Fort Warren	13.91?	1872	2.97	18	1888				
Lunenburg	11.29	1848							
Nantucket						1.00	1 00	12	1887
Newburyport			3.25	17-18	1888				
Princeton			4.83	6-7	1884				
Richmond	11.25	1866							
Rowe			3.00	10	1878				
Royalston			2.62	17	1888				

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
<i>Massachusetts—Continued.</i>	<i>Inches.</i>		<i>Inches.</i>			<i>Inches.</i>	<i>h. m.</i>		
Westborough			3.89	17-18	1888				
<i>Michigan.</i>									
Detroit						1.17	0 55	6	1873
Mackinaw City			4.50	20-21	1883				
Niles			2.50	11	1881				
Northport	10.32	1879	3.05	21	1882				
<i>Minnesota.</i>									
Minneapolis	5.30	1873							
<i>Mississippi.</i>									
Artonish	11.00	1884							
Biloxi	10.13	1887							
Brookhaven			4.20	24	1875	4.20	4 00	24	1875
Churchill	11.52	1850							
Columbus	13.32	1857							
Do.	10.72	1859							
Enterprise	10.30	1870							
Fayette			2.60	13-14	1879				
Do.			2.60	19	1882				
Marion	10.10	1872							
Natchez	14.03	1843							
Do.	11.00	1847	3.20	11	1869				
Do.	10.06	1869	3.90	21	1869				
Palo Alto	10.28	1887							
Starkville	11.17	1887							
Vicksburg	12.12	1866	5.05	18-19	1872				
Do.	10.06	1869	3.70	23-24	1876				
Do.	10.33	1872	2.92	1	1880				
Do.			3.78	19-20	1882				
Do.			4.51	29-30	1883				
Do.	13.52	1884	4.07	29	1884				
<i>Missouri.</i>									
Jefferson Barracks	10.22	1846							
Pierce City	10.10	1884							
Princeton			3.00	25-26	1888				
Saint Louis (1)	12.23	1846							
Saint Louis (2)	10.90	1846							
Do.			3.19	31	1846				
Do.			5.00	4	1858				
Do.			2.61	2-3	1873				
Saint Louis Arsenal	13.55	1846							
<i>Montana.</i>									
Missoula	7.24	1871							
<i>Nebraska.</i>									
Ord	7.26	1882							
<i>Nevada.</i>									
Cedar Pass	9.04	1872							
<i>New Hampshire.</i>									
Antrim			2.60	17-18	1888				
Dunbarton	10.63	1878							
Mount Washington	15.95	1881	3.03	14	1881				
<i>New Jersey.</i>									
Atco			2.52	11	1878				
Freehold			3.14	10	1878				
Gillette			3.27	17	1888				
Hanover			3.22	17-18	1888				
Highland			2.70	17-18	1888				
Hopewell			2.50	17-18	1888				
Lambertville			3.00	17-18	1888				
Locktown			3.05	17-18	1888				
Madison			3.45	17-18	1888				
New Brunswick (1)			3.00	17	1888				
New Brunswick (2)			2.88	17-18	1888				
Newark			2.50	17	1888				
Newton			2.64	31	1887				
Plainfield			3.25	16-17	1888				
Rio Grande	10.75	1872							
South Orange			3.75	17	1888				
Somerville			3.18	17	1885				
Tenafly			3.35	16-17	1888				
Union			2.52	17	1888				
<i>New Mexico.</i>									
Fort Tulerosa	7.08	1873							
<i>New York.</i>									
Ardenia			4.51	10	1878				
Do.			4.00	16-17	1888				
Boyd's Corners			5.02	11	1878				
Buffalo			2.53	22-23	1878				
Cooper Union (New York City)			5.00	20	1874				
Fort Hamilton			2.52	21	1878				
New York City			2.82	17	1888				
North Volney			3.75	11	1878				
Oswego	10.49	1878	2.81	10-11	1878				
Sandy Hook			2.72	21	1878				
West Point	16.65	1836	2.61	10	1878				
Do.			3.60	18	1888				
White Plains	12.60	1879	2.60	13	1882				
Do.			3.35	16-17	1888				
<i>North Carolina.</i>									
Brevard	10.28	1884	2.85	6	1884				
Cape Lookout	11.25	1878	3.24	29	1877				
Do.			4.77	21	1878				
Charlotte				13-14	1879				
Elsworth	13.00	1880	5.00	1-2	1880				
Do.			3.50	25	1880				
Fayetteville	14.50	1878	6.00	9-10	1878				
Do.			6.00	20-21	1878				
Do.			3.00	6	1879				
Franklin			4.70	28-29	1875				
Hatteras	13.38	1877	4.17	19	1877				
Do.	10.20	1878	3.72	26	1877				
Do.			2.60	5	1877				

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
North Carolina—Continued.									
Hatteras	Inches.		Inches			Inches	h. m.		
Do.			4.25	10	1878				
Do.			2.83	30	1882				
Do.			2.65	5	1886				
Do.			3.10	10	1887				
Do.			3.76	10-11	1888				
Highlands	15.04	1881	2.52	22	1881				
Do.	11.94	1884	5.30	26	1881				
Kitty Hawk			4.40	26	1877				
Do.			2.57	30	1882				
Do.			2.55	11	1888				
Murphy	12.50	1872							
Southport			2.86	29	1877				
Do.			3.30	13-14	1879				
Weldon			2.68	5-6	1884				
Wilmington			2.98	29	1877				
Ohio.									
Cincinnati	11.23	1848	2.50	31	1871				
Do.			2.75	12-13	1873				
Do.			3.10	4-5	1880				
Do.			2.60	23-24	1883				
College Hill			3.50	4-5	1880				
Clyde			3.00	13	1885				
Kenton			2.75	3-4	1873				
Do.			3.25	27	1875				
Marietta	10.84	1847							
Portsmouth	11.10	1847							
Oregon.									
Albany	10.00	1880	3.27	13	1882				
Do.	11.64	1882	2.60	24	1883				
Do.	10.31	1886							
Do.	14.21	1887							
Astoria	10.16	1854	3.57	31	1875				
Do.	10.93	1855	3.17	6-7	1887				
Do.	10.74	1856							
Do.	22.78	1857							
Do.	12.44	1858							
Do.	16.19	1861							
Do.	10.98	1862							
Do.	16.75	1863							
Do.	14.27	1864							
Do.	13.21	1865							
Do.	15.50	1866							
Do.	24.73	1867							
Do.	14.04	1868							
Do.	10.11	1870							
Do.	15.90	1871							
Do.	11.32	1872							
Do.	19.49	1875							
Do.	16.86	1886							
Do.	16.64	1887							
Bandon	13.27	1885	3.00	9	1885				
Do.	11.97	1886	3.49	21	1885				
Do.	14.54	1887	2.51	28	1887				
Block House	22.59	1858							
East Portland	11.34	1886							
Do.	12.10	1887							
Eola	11.50	1880							
Fort Dallas	10.79	1856							
Fort Hoskins	18.97	1856							
Do.	15.72	1857							
Do.	13.71	1858							
Do.	12.09	1861							
Do.	13.50	1863							
Fort Stevens	10.70	1865							
Do.	16.60	1866							
Do.	21.69	1867							
Do.	13.90	1871							
Do.	10.90	1872							
Do.	21.27	1880							
Do.	13.47	1881							
Fort Umpqua	11.43	1856							
Do.	12.60	1857							
Do.	14.69	1858							
Do.	18.95	1861							
Fort Yamhill	14.80	1856							
Do.	14.26	1857							
Do.	11.37	1858							
Do.	13.17	1861							
Do.	10.01	1863							
Do.	10.80	1865							
Gardiner	13.97	1886	2.65	8	1886				
Mount Angel	12.45	1886							
Newport	17.91	1887							
Portland	13.41	1875	3.13	30-31	1875				
Do.	13.93	1880	3.15	9-10	1877				
Do.	20.14	1882	7.66	12-13	1882				
Do.	11.52	1886							
Do.	11.34	1887							
Port Orford	16.91	1852							
Do.	20.00	1853							
Do.	20.00	1855							
Roseburgh			2.86	4	1879				
Do.			2.50	24-25	1883				
Do.			2.53	16-17	1884				
Yaquina Light-House	17.91	1887	8.47	5-6	1887				
Do.			2.66	25	1887				
Pennsylvania.									
Altoona	9.72	1859	2.90	†	1884				
Blooming Grove			2.50	17	1887				
Chambersburgh			2.76	16-17	1888				
Germantown									

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
<i>Pennsylvania—Continued.</i>	<i>Inches.</i>		<i>Inches</i>			<i>Inches</i>	<i>h. m.</i>		
Newtown.....			2.77	27	1839				
Pittsburgh.....						1.30	1 00	26	1875
Quakertown.....			3.38	16-17	1888				
Tarentum.....			3.00	10	1878				
West Chester.....			3.76	17	1888				
Westtown.....			3.12	17	1888				
Wellsborough.....			3.46	6	1884	1.20	0 20	7	1884
Do.....			2.50	13	1885				
<i>Rhode Island.</i>									
Providence.....	7.80	1884							
<i>South Carolina.</i>									
Brewers Mines.....			2.63	17	1888				
Charleston.....	9.68	1844	2.54	25	1873				
Do.....			3.46	9-10	1885				
Do.....			3.08	23-24	1887				
Hacienda Saluda.....			5.00	27-29	1875				
Hardeeville.....			3.54	24	1887				
Statesburgh.....			3.65	5-6	1884				
<i>Tennessee.</i>									
Ashwood.....			2.70	31	1887				
Austin.....	10.20	1879							
Clarksville.....	11.48	1858	2.50	1	1878				
Charleston.....			3.38	21	1884				
Chattanooga.....			3.10	10-11	1879				
Do.....			3.08	21-22	1881				
Cleveland.....			3.16	3	1874				
Cookville.....			2.97	31	1887				
Flat Creek.....			2.62	21	1884				
Florence Station.....			2.96	31	1887				
Fostoria.....			2.85	21	1884				
Do.....			3.00	31	1887				
Greensville.....			3.00	5	1886				
Grief.....			1.70	21	1884				
Hohenwald.....			2.54	31	1887				
Jonesborough.....			3.00	5	1886				
Knoxville.....			3.48	19-20	1872	1.10	0 45	4	1873
Do.....						1.03	0 30	26	1875
Lawrenceburgh.....			3.88	31	1887				
Memphis.....			3.00	29-30	1884				
Parksville.....			2.72	21	1884				
Riddleton.....			2.86	31	1887				
Rockwood.....			3.00	21	1884				
Savannah.....			2.58	31	1887				
<i>Texas.</i>									
Austin.....			3.45	8-9	1872	1.05	1 00	4	1879
Brazoria.....			3.49	29-30	1888				
Clarksborough.....	18.50	1876							
Clarksville.....	13.50	1873	8.50	29-30	1874	1.36	0 20	28	1871
Do.....	10.25	1874	6.00	31-1*	1874				
Do.....			3.00	23	1875				
Do.....			8.50	28-29	1876				
Do.....			2.75	3	1877				
Do.....			2.50	13	1881	2.50	2 30	13	1881
Do.....			2.66	12	1885				
Corsicana.....									
Fort Clark.....	23.03	1857							
Fort Graham.....	11.03	1850							
Fort Worth.....			2.50	25	1888	2.50	2 30	25	1888
Fredericksburgh.....			3.40	20	1877				
Galveston.....			4.63	21-22	1875	1.36	0 20	28	1871
Do.....			4.74	19-20	1878				
Do.....			2.72	18-19	1882				
Do.....			4.50	28	1884				
Do.....	10.28	1887	2.90	23-24	1887				
Gilmer.....			3.17	20-21	1875				
Melissa.....	13.50	1873	5.00	27-28	1877				
Do.....	12.00	1877							
<i>Mexia.</i>									
New Uim.....	16.43	1875	2.50	29	1888				
Do.....			5.62	3	1875				
Do.....			3.12	21	1875				
Do.....			2.63	24	1875				
Do.....			1.50	31	1875				
Do.....			2.63	20	1877				
Do.....			2.85	12	1885				
Do.....			3.57	10-11	1884				
Palestine.....			2.55	12	1887				
Rio Grande City.....									
San Antonio.....	11.09	1857				1.00	1 00	12	1885

Table showing for the month of December, &c.—Continued.

States and stations.	Rainfall of 10 inches, or more, per month.		Rainfall of 2.50 inches, or more, in 24 hours.			Rainfall equaling or exceeding one inch per hour.			
	Amt.	Year.	Amt.	Day.	Year.	Amt.	Time.	Day.	Year.
<i>Utah.</i>	<i>Inches.</i>		<i>Inches</i>			<i>Inches</i>	<i>h. m.</i>		
Kanab.....	6.50	1872							
<i>Vermont.</i>									
Castleton.....	6.92	1869							
Manchester.....			2.60	17	1888				
<i>Virginia.</i>									
Cape Henry.....			3.07	10	1878				
Lynchburgh.....	11.81	1884	3.17	13-14	1879				
Do.....			4.50	22	1883				
Do.....			6.74	21	1884				
Norfolk.....			2.85	25-26	1872				
Do.....			2.52	10-11	1888				
Rappahannock.....			2.51	20	1887				
Walnut Grove.....			3.00	22	1879				
<i>Washington.</i>									
Blakely.....	17.25	1879	2.50	6	1887				
Bainbridge Island.....	17.25	1880							
Do.....	11.15	1886							
Cape Disappointment.....	10.00	1864							
Do.....	16.12	1866							
Do.....	14.60	1868							
Do.....	11.11	1871							
Cathlamet.....	13.00	1871							
Do.....	20.00	1875							
Dayton.....			3.69	13	1882				
Fort Canby.....	13.54	1880	2.77	18	1884				
Do.....	11.55	1881							
Do.....	12.46	1882	2.58	30-31	1886				
Do.....	10.56	1885							
Do.....	17.35	1886							
Do.....	15.18	1887							
Fort Steilacoom.....	13.01	1857							
Do.....	12.06	1867							
Fort Vancouver.....	13.37	1852							
Do.....	10.77	1855							
Do.....	15.37	1856							
Do.....	12.28	1857							
Do.....	16.04	1867							
Fort Walla Walla.....	12.84	1861							
Neah Bay.....	27.30	1863	3.10	12	1886				
Do.....	14.50	1864	2.83	4	1887				
Do.....	14.00	1865	5.45	16-17	1887				
Do.....	23.22	1880							
Do.....	11.83	1883							
Do.....	13.00	1885							
Do.....	30.70	1886							
Do.....	22.57	1887							
Olympia.....	11.73	1877							
Do.....	11.42	1879	3.60	1	1878				
Do.....	16.66	1880	3.31	30-31	1879				
Do.....	10.32	1882	3.32	18-19	1884				
Do.....	13.38	1886	2.50	30-31	1886				
Do.....	15.75	1887	3.82	6-7	1887				
Pysht.....	11.34	1883							
Do.....	21.61	1886							
Do.....	16.00	1887							
Tacoma.....			2.82	31	1886				
Do.....	11.09	1886							
Do.....	10.26	1887							
Tatoosh Island.....	10.45	1883	2.85	20-21	1884				
Do.....	12.47	1884	2.95	2-3	1886				
Do.....	10.14	1885	4.02	12	1886				
Do.....	25.84	1886							
Do.....	17.47	1887							
Do.....	11.82	1888							
Tatoosh Light-House.....	11.75	1869							
Do.....	16.82	1870							
Do.....	15.75	1871							
Vashon.....	10.07	1887							
<i>West Virginia.</i>									
Helvetia.....	8.81	1881							
<i>Wisconsin.</i>									
Appleton.....	9.29	1857							
<i>Wyoming.</i>									
Fort Fetterman.....	6.02	1872							

* January 1, 1875.

WINDS.

The most frequent directions of the wind during December, 1888, are shown on chart ii by arrows flying with the wind. In the Saint Lawrence Valley, New England, and New York south to west winds prevailed. On the Atlantic coast south of the fortieth parallel, and along the Gulf coast east of the Mississippi, north to west winds predominated. In the Lake region, and the Ohio and lower Mississippi valleys they were generally from south to west; in the upper Mississippi and Missouri valleys from the northwest, while in the Rocky Mountain regions and Texas they were variable. On the Pacific

coast north of the forty-fifth parallel southerly winds prevailed; at Eureka, Cal., the prevailing direction was southwest; at San Francisco northwest; at Los Angeles west, and at San Diego northwest.

HIGH WINDS (in miles per hour).

Maximum velocities of fifty miles, or more, per hour, other than those given in the table of miscellaneous meteorological data, have been reported as follows: Wood's Holl, Mass., 51, ne., 12th; Block Island, R. I., 50, nw., 12th; 60, nw., 18th; Fort Canby, Wash., 56, s. 2d; 60, s., 8th; 54, s., 11th; 69, s.,